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Chain of custody certification: an assessment of Ghanaian timber sector

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Abstract Although Europe represents a major market for Ghana, information on how local companies are addressing chain of custody certification is scarce. A survey of 103 timber firms, in particular, was conducted in order to determine the current status of chain of custody certification in Ghana. Results collated indicate that the readiness to adopt chain of custody certification among the sector was low. The lack of stakeholders' awareness and price premium was cited as the primary reasons deterring the sector from adopting certification. This study analysis suggests that company size is an important variable to be considered when analyzing the adoption of chain of custody certification by timber companies. This study shows that an increasing adoption of chain of custody certification among the sector in Ghana can be realised with good stakeholder consultations and resource rights.

Chain-of-Custody-Zertifizierung: Untersuchung der ghanaischen Holzbranche

Zusammenfassung
Obwohl Europa für Ghana ein großer Markt ist, gibt es nur wenig Information darüber, wie lokale Unternehmen die Chain-of-Custody-Zertifizierung handhaben. Aus diesem Grund wurde eine Studie unter Einbeziehung von 103 Holzfirmen durchgeführt, die den Stellenwert einer Chain-of-Custody-Zertifizierung in Ghana ermitteln soll. Die Ergebnisse zeigen, dass die Bereitschaft zu einer COC-Zertifizierung in dieser Branche gering war. Als Hauptgründe dafür wurden das fehlende Bewusstsein der Firmen sowie fehlende Preisvorteile genannt. Die Studie ergab, dass die Unternehmensgröße eine wichtige Variable ist, die es bei der Analyse der Akzeptanz der Chain-of Custody-Zertifizierung in der Holzbranche zu berücksichtigen gilt. Desweiteren zeigt diese Studie, dass eine stärkere Akzeptanz einer COC-Zertifizierung in dieser Branche in Ghana mit einer guten Beratung der Firmen in Verbindung mit Einschlagsrechten erreichbar wäre.

1 Introduction

While much has been written about certification of the forest for sound management practices, there has been little examination of chain of custody certification for wood products in Africa. The authors chose Ghana as a representative case study based on Ghana's advance approach on illegal logging and trade of timber products (e.g., in September 2008 Ghana has signed the Voluntary Partnership Agreement with the

European Union). Furthermore, as the timber sector is the second largest export sector after the cocoa sector, an evaluation of the status of chain of custody certification within industry was necessary. Therefore this study assessed the current opinion within the timber sector of why in Ghana the adoption of chain of custody certification among timber industry sector is low.

In Ghana, the introduction of forest certification concept required major policy changes and resulted in the introduction of the Forest Policy in 1994 and the Forestry Development Master Plan in 1996 (Donkor 2003). Major progress has been made in Ghana with the establishment of the producers group under the Global Forest Trade Network (GFTN). Four companies that account for about 40% of Ghana's timber exports are members of the producers group. The GFTN – producers group, Ghana have received technical support from WWF and financial support from the Department for International Development (UK) (DFID). It is evident from the companies engaged in the GFTM that this initiative has not targeted the SMFEs for support and engagement. This initiative has involved only the large scale enterprises (LSEs) in the Ghana timber industry. Ways need to be found by which small and medium-sized forestry enterprises (SMFEs) can better contribute to forest certification in Ghana so as to improve the prospects for sustainability.

SMFEs are largely "invisible economies that are ignored in most policy development (Thomas et al. 2003). This is reflected in the process of forest certification. Standards were developed which have not reflected the needs of SMFEs. This is supported by various authors reporting on difficulties of SMFEs by achieving forest certification (Baharuddin and Simula 1996; Thornber et al. 1999; Meidinger et al. 2003).

There are many definitions for SMFEs which usually cover some or all the characteristics of SMEFs such as number of employees, revenue and turnover, range of products, markets etc. (O'Donnell et al. 2002). Definitions of SMFEs even within a country have varied. In Chile, companies are classified according to their turnover. In South Africa, SMFEs are classified by turnover, gross asset value and number of employees; while in India any industrial concern with fixed assets less than 10 million rupees is classified as SME (IISD 2004).

In Ghana, the National Board for Small Scale Industries (NBSSI) define SMEs as companies that employ between 9 and 29 workers, have fixed assets excluding land and buildings that do not exceed US$100 000. On the other hand, the Association of Ghana industries defines SMEs as companies employing up to nine workers (Abor et al. 2007).

There is a general agreement that SMEs form the bedrock of most African economies, however financial support for them is limited. Sraha (2003) also cites micro business as the engine of growth but argues that it is general practice for new governments to make lofty promises to support SMEs. However, immediately the governments settle down after assuming power, they forget about their promises and pay only lip service and nothing is done to support or improve the conditions of the SMEs. PEF (2004) argue that the legal framework in Ghana does not provide assistance to SMEs and these SMEs are therefore constrained by:

- Finance since they are not credit worthy as a result of their low asset base
- Technology since low financial base does not allow them to invest in technology. For the forest industry and forest certification it will be difficult for the SMEs to acquire technology to support the tracking of their material. Research will therefore seek to examine the effect of the technology gap
- Marketing since marketing is not well developed in the SMEs. There is the lack of market information and ability to track market changes. This would be examined to establish its effect on the ability of the SME to adapt to

certification due to the lack of market information on the demands and requirements of the market. This could imply the lack of knowledge on global trends which Sraha (2003) identified as a constraint facing SMEs in the Accra-Tema Area of Ghana.

Therefore, this study assesses the current opinion within the timber sector of why in Ghana the adoption of chain of custody certification among timber industry sector is low.

2 Methodology

In order to assess the current status of chain of custody certification in Ghana, a survey of a random sample of various stakeholders (103), in particular timber firms was conducted by mail post. The study population comprised registered timber firms in Ghana that are engaged in the area of logging, processing and exporting of wood products. A list of companies that hold concessions, have processing mills or export timber at least once since 1986 was compiled. This formed the study population. The year 1986 was chosen as the base year because this period saw agitation by the NGOs, particularly Greenpeace for the boycott of tropical timber. This was the year that Greenpeace picketed one of the Council sessions of the ITTO, in Yokohama Japan.

Companies were grouped into clusters based on geographic locations and sampled. Three geographic areas, namely Ashanti, Brong Ahafo and Western regions in Ghana were considered for the sample (Figure 1). The three regions were chosen because of the extent of forest concession holdings in the regions coupled with the strong presence of timber processing firms in these regions. The samples were further classified into two groups, Small to Medium Sized Forest Enterprises (SMFEs) and Larger Scale Enterprises (LSEs). Data was collected over a six month period in 2008.

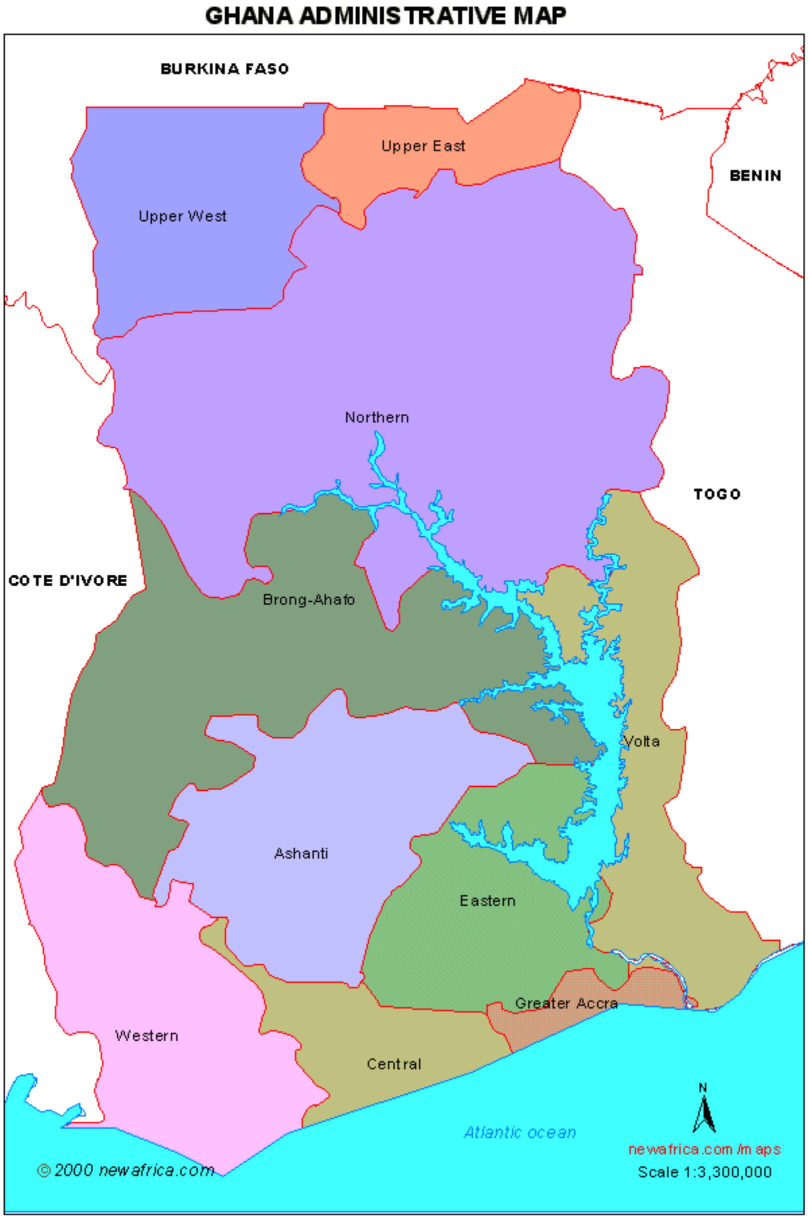

FIGURE 1: Ghana administrative map

Prior to the implementation of the survey each firm was contacted by telephone to:

- Ensure that they were still active. The list of registered loggers, millers and exporters was obtained from TIDD/FC.
- Confirm the postal and e-mail addresses so as to reduce the incidence of non-response
- Identify appropriate individuals to address the questionnaire to – In this study these was corporate and upper management personnel. Individuals meeting these criteria were used.
- Pre-notify the companies of the survey in order to enhance the response
- The questionnaire was designed to collect information on knowledge, attitudes and behaviour in respect of forest certification within the Ghanaian SMFEs.

A pilot test was carried out to assess the reliability of the questions using correlation to establish the level of reliability. A score of 0.8 and above was considered as good. To address the issue of reliability multiple-item indicators were used.

These pilot test companies came from the following groups:

- Loggers
- Sawmillers / plymillers
- Veneer millers
- Furniture and Wood Workers Association of Ghana

These groups were sub- divided into SMFEs and LSEs. For each category two respondents were selected except for the sawmillers' group where the number was four due to the size of registered sawmills and their numbers that are also engaged in the export markets.

In the present study pilot group, the test for reliability (internal consistency) for the entire scale yielded a Cronbach's alpha value of 0.837 which is relatively high, implying that the items in the questionnaire or study instrument measured what they were supposed to measure. The high Cronbach's alpha value is an indication that the entire instrument has a high replicable value. To evaluate the reliability of the subscales used in the entire data collection instrument, the following results (Cronbach's alpha values) were obtained:

TABLE 1: Reliability Coefficient scores (Cronbach's alpha value) for the sub-scale of the study questionnaire

#	Constructs / Sub Scales	Cronbach's alpha value
1	Standards	0.795
2	Stakeholder Consultations	0.621
3	Company size	0.659
6	Market benefits	0.672

These values as displayed in Table 1 are significant and show that each sub-scale item differentiates among respondents in the same direction, as does the entire scale. The significance of these figures is indicative of the fact that the scale measures what it was designed to measure.

The statements used in the questionnaire covered the relevant chain of custody certification factors reported in previous studies (Volsky and Ozanne 1998, Vidal et al. 2005, Ratnasingam et al. 2008). With the inferential statistics, two parametric statistical tests were used for the analysis: the Standard Multiple Regression and the Independent t-test. The standard multiple regression for instance, made it possible to investigate the effect of a number of independent variables on a dependent variable. The Independent t-test on the other hand established the significant difference between two independent groups in causing the occurrence or a change in the dependent variable. These tests were used to test for significance among the scores from the various groups of respondents.

The rationale for the use of the parametric tests (the multiple regression and the Independent t-test) include amongst others the fact that the dependent variable on which the test for significance was computed was measured with interval scale and the distribution of mean scores is normally distributed. The data was analyzed using the Excel Spread Sheet and the Statistical Package for the Social Sciences (SPSS).

3 Results

Of the 103 respondent firms who participated in this study, 70.9% were SMFEs and 29.1% were LSEs. This is a reflection of the structure of the Ghanaian timber industry and the responses will to a large extent reflect the position of the SMFEs. 72.8% of respondents where managing directors of the company and 9.7% of respondents were forest managers. The survey however showed that very few companies had certification managers responding to the questionnaire. This could be due to the absence of forest certification in the companies and hence the absence of the job functions in the companies that were surveyed.

47% of companies in the SMFE indicated that there should be 1-10% premium of certified timber while 60% of the LSEs were of the opinion that there should be a price premium of between 1-10%. This reflects that producers in Ghana generally favour certified products attracting a premium.

This study also identified that lack of finance and illegal logging were reported as being responsible for the constraints to forest certification in Ghana (Table 2). The high number of nonresponse could reflect the fact that respondents were not undertaking forest certification and hence were not faced with constraints. It could also imply that respondent lack of engagement in forest certification could also be responsible for the nonresponse in that they were not familiar with certification.

The activities of respondents were not mutually exclusive since companies are engaged in more than one activity. However, the number of respondents was mainly in the logging and sawmilling industries. Again this is a reflection of the structure of the industry where the main activities are in the primary processing sector. Sawmills accounted for 65% of respondents while loggers accounted for 13.6% of respondents. The two groups collectively accounted for over 75% of the respondents.

In respect of whether timber firms have heard of forest certification, 56.3% of respondents indicated that they had heard of forest certification and 43.7% of respondents indicated that they had not heard of forest certification. This is fairly evenly distributed between two groups i.e., those who have heard of forest certification and those that have not. This could reflect the level of awareness of forest certification in Ghana.

The survey examined the number of companies holding Timber Utilisation Contracts (TUCs). TUCs form the basis for ownership of the forest resource. 71.9% of companies do not hold TUCs. This implies that many companies that process timber do not hold access to raw material and are most likely buying their raw materials. 61.2% of companies surveyed indicated that they did not have Timber Utilisation Permits. These are permits for harvesting usually given for salvage or short term removal of timber. This implies that a large number of processing companies do not have access to the resource and this could undermine the process of sustainable forest management. The inability of companies to gain access to timber resources could also account for the slow pace of forest certification since companies engaged in milling do not own any forest concessions. Only 36% of companies hold TUCs.
However, with regard to the question of who is engaged in Forest Certification, 88.4% of respondents indicated they had not heard of forest certification and only a mere 10.7% said they are engaged in Forest Certification. This reflects a low uptake of forest certification in Ghana.

3.1 Market benefits of chain of custody certification

Six statements regarding the benefits derived from the chain of custody certification was asked to 103 stakeholders. These statements seek to establish if access to markets is the reason for timber firms in Ghana to pursue forest certification. The construct of independent variables which relate to the market demand from sustainable managed forests, domestic demand, companies response to market demand, enhancement of sales, meeting market requirements and forest certification as a market instrument for promoting sustainable forest management were run against the dependent variable of firms' pursuance of forest certification.

The descriptive statistics for pursuance of forest certification by timber firms indicated the mean and standard deviation values for Ghanaian timber firms on whether they pursue forest certification to gain access to the markets. The mean values indicate a noticeable difference in the reason and extent to which Ghanaian timber firms pursue forest certification. The pursuance of forest certification in response to market demands variable being the highest (mean=4.44) whilst "There is domestic demand for timber from sustainable managed forests" is the lowest (mean=2.58) in terms of pursuance of forest certification with the aim at gaining access to markets. This is a reflection of the lack of demand for forest certification on the domestic market. Respondents generally perceived forest certification as a market tool for promoting sustainable forest management with a high score (mean=3.83). Standard multiple regression was used to test for the significance of the relationship between all the independent variables (markets) and the dependent variable (firms pursuance of forest certification).

Regression results with engagement in forest certification as dependent variable revealed an insignificantly positive relationship between Ghanaian timber firms' pursuance of forest certification and access to markets [R2 =0.026; F (6, 102) = 0.43, p=ns]. This implies that the desire for Ghanaian timber firms to gain access to markets is independent of the activities aimed at pursuing forest certification. The survey therefore shows that the hypothesis "Timber firms in Ghana pursue forest certification to gain access to markets" is therefore not supported. Market access does not appear from the survey to be a driving force for timber firms in Ghana to engage in forest certification.

The analysis of the relationship between the various independent variables (that is, individual variables that define timber firm's access to markets) and the dependent variable (engagement in forest certification) revealed that none of the access to market variables could correlate significantly with the dependent variable (engagement in forest certification).

These indicate that the respondents do not perceive market access as a basis for engaging in forest certification and could explain the slow uptake of forest certification in Ghana.

3.2 Size of company in the timber industry can affect the decision to pursue forest certification

70.9% of companies that were part of this study were SMFEs and 29.1% were LSEs. An independent t-test was used to establish if there is a difference in the decision of the two groups to pursue forest certification. The result of the t-test is shown in Table 2.

TABLE 2: Independent t-test for size of company and decision to pursue forest certification

Dependent variable	Size of Firm	N	Mean	SD	t	df	p
Decision of timber industries to pursue forest certification	Small & Medium Scale Enterprises	73	1.99	0.117	5.354	101	.001
	Large Scale Enterprises	30	1.67	0.479			

The independent t-test results presented in Table 6 indicate that there is a significant difference between the two groups, namely the SMFEs and the LSEs. The results show that the size of firm and the decision to pursue forest certification (N=103, t=5.35, p<.001) is significant at the 95% confidence level. In this instance, small and medium scale enterprises are (mean = 1.99) more predisposed to pursue forest certification than large scale enterprises (mean = 1.67). The LSEs are engaged in more than one area of activity, particularly in the value added product sector. The responses however showed a high level of nonresponse for this open-ended question especially for the SMEs where 63% of SMEs did not respond to this question. 40% of respondents within the LSEs category did also not respond to constraints question.

3.3 Awareness of chain of custody

In this study, the stakeholder group considered were timber operators. This was aimed at providing a focus on the operatives and those engaged in managing, harvesting, processing and trading of the resources.

The descriptive statistics for stakeholders' awareness of certification and absence of forest certification found that few timber firms are engaged in forest certification (represented by 10.7% of the firms) in Ghana. The mean and standard deviation results for stakeholders' awareness of certification and absence of forest certification reflect very low levels of awareness of forest certification by stakeholders in Ghana. There are some levels of differences among the mean values for the various defining constructs of stakeholders' awareness of certification (that are the independent variables). For instance, activities such as consultation of landowners on forest certification (mean = 2.75), engaging companies in developing domestic policies (mean = 2.61) and consulting companies in developing forest certification (mean = 2.59) appeared to be higher than the other activities like forum for stakeholder consultation on forest certification (mean = 1.54).

Regression results with pace of forest certification in Ghana as dependent variable indicated that stakeholders' awareness of certification correlated positively and significantly with the absence of forest certification [R^2 =0.159; F (7, 102) = 2.571, p<.05]. This implies that the forest certification of timber firms is dependent on the level of stakeholder awareness of certification. In this case, lack of stakeholders' awareness of certification negatively affects the pace at which forest certification is pursued by Ghanaian timber firms. Thus, the lack of stakeholder awareness of certification can be concluded as somehow responsible for the absence of forest certification in Ghana.

In analysing the relationship between the various defining variables of stakeholder awareness of certification and the pace of forest certification, although a significant positive relationship has been established between overall stakeholder awareness of certification and the forest certification, none of the stakeholder awareness of certification variables with the exception for community consultation could correlate significantly with the dependent variable (r = -0.284, p <.05).

4 Discussion

The respondents had a high level of top management addressing the questionnaire reflecting the seriousness attached to the research work by the timber industry in Ghana. 70.9% of respondents were from the SMFEs category. A high number of respondents did not own forest concession in either TUPs or TUCs indicating that a high proportion of respondents purchased their raw material implying the need for an effective chain of custody system if certification is credible in Ghana. Timber firms in Ghana expect certified timber to provide them with a price premium of between 1-5% while 18.4% expect premiums of between 6-10%. Respondents were of the view that the national standard should be accredited to either FSC or PEFC standards. Respondents prioritised company size, and stakeholder consultations as key elements for CoC success in Ghana.

5 Conclusion

Although the chain of custody (CoC) certification program in Ghana, aims at strengthening the capacity to protect against illegal logging and trade of timber and wood products, the relatively low number of companies involved in the process could be explained by the weak awareness and fundamental economics despite the international market demand. Changes in the approach in terms of companies' awareness and presence of a solid stakeholders consultation programme may be the key for certification to be a success story in Ghana. The use of premium in promoting certification could quicken the rate of growth of CoC certification in Ghana and the tropical timber countries in general.

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Abb. 1:
Karte der Verwaltungsgebiete in Ghana

Tabelle 1
Zuverlässigkeitskoeffizienten (Cronbachs Alpha) für die Themenbereiche im Fragebogen

Tabelle 2
Unabhängiger t-Test bezüglich Unternehmensgröße und der Entscheidung zugunsten einer Forstzertifizierung